point that was particularly impressed upon me was the necessity of having antivenin serum available for use of those who may be injured. This is especially important in view of the fact that the serum is extremely expensive and for this reason will not be generally carried by campers and hikers. A supply should be on hand at certain definite points, and the location of these points should be widely advertised. County seats if supplied could be reached from most points within a few hours. Better still would be judiciously stocking the forest rangers so that inquiry from any ranger would immediately locate the whereabouts of a fairly nearby supply of serum.

I believe thoroughly that the serum if used in sufficient quantity is efficacious, but personally I would resort to ligature just as Doctor Doughty does and, in addition, would practice the old treatment of puncture producing as free bleeding as possible.

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DOCTOR DOUGHTY (closing).—The mortality in sixty-seven collected cases of rattlesnake bite reported in Texas was 34.3 per cent where antivenin was not used. In eighty-three cases treated with antivenin the mortality was 6 per cent. The fatalities in this series probably could have been avoided, had it been possible to give the serum earlier.

Specific treatment of rattlesnake bite by antivenin should not be omitted because one may have *faith* in local measures which are *not* specific. The many first-aid kits made for the use of the layman give a sense of false security and do not urge the public to seek early administration of antivenin. The knowledge of the availability and specificity of this serum must be disseminated by the general practitioner.

TUBERCULOUS INFECTION—ITS INCIDENCE IN A GROUP OF CHILDREN OF ORIENTAL PARENTAGE*

By LLOYD B. DICKEY, M. D.
San Francisco

DISCUSSION *by Harold K. Faber, M. D., San Francisco; William C. Hassler, M. D., San Francisco; William H. Happ, M. D., Los Angeles.*

THE tuberculin skin reactions of Pirquet[1] and Mantoux[2] have been the accepted methods of determining the incidence of tuberculous infection in childhood since these discoveries were first announced.

PIRQUET AND MANTOUX REACTION STATISTICS

The high incidence of infection among the poorer Viennese children of 12 to 14 years of age, 81.5 per cent as reported by Pirquet[3], and 94.3 per cent as reported by Hamburger and Monti[4] for hospital children gave rise to the impression that tuberculous infection was nearly universal by the time children had reached the age of puberty. Later statistics compiled by Hoffa[5], Barchetti[6], and others, from different European cities deepened this impression, although the percentages of infections reported were not as high.

Veeder and Johnston[7] found 48 per cent of hospital children infected between the ages of 12 to 14, and concluded "that the percentage of positive tuberculin reactions among children of relatively the same social conditions was much lower in St. Louis than in Vienna." They further concluded that "the extent of infection among children varies in different cities and countries and is dependent on such factors as living and social conditions, the amount of tuberculosis in the community, the exposure of the child to open tuberculosis, and in all probability varies among different classes of society in the same community."

Conclusions such as the above are proved to be sound by comparing the report of Sill,[8] who found 48 per cent of children from 10 to 13 years to be infected, with the results of Slater[9], who found only 12 per cent infected in the 12 to 14-year group. Sill's patients were selected from the lower east side of New York City, were children mostly of parents of foreign birth and with negative histories of exposure. Slater's tests were done on children "in a rural community, in which economic and hygienic conditions are unusually good." In this series the percentage of children infected did not increase with the increase in age.

SKIN REACTIONS IN INDIANS

Few reports in the literature have appeared to determine the incidence of tuberculous infection in other than in children of the white race. Ferguson[10] tested 162 Indian children of school age in Saskatchewan, and found 92.5 per cent to react positively to tuberculin tests. The high mortality rate in North American Indians from tuberculosis is, of course, well known, and Ferguson's results are not surprising in view of what is known about adult tuberculosis in the red race. Possibly a relatively large percentage of Veeder and Johnston's patients were of the negro race.

TUBERCULOSIS IN ORIENTAL RACES IN CALIFORNIA

The problem of tuberculosis in the Oriental races is of special interest in San Francisco, due to the large numbers of these peoples residing within the city. Members of the Oriental races are limited mostly in their residence to two different parts of the city, the Japanese section, and San Francisco's Chinatown. The latter is probably the largest Oriental section in the Occident. Figures compiled by the Department of Public Health[11] show that 24 per cent of all the Chinese deaths in 1926 were due to tuberculosis, a rate of 459 per 100,000 population, as compared with a rate of 99.3 per 100,000 for the rest of San Francisco.

From these figures, and from the fact that the Orientals are known to live in very congested quarters, it would be suspected that the incidence of tuberculous infection among children of the yellow race, as revealed by tuberculin tests, would be correspondingly high as compared with the incidence of infection in the children of the city at large.

During the course of a study undertaken for the San Francisco Tuberculosis Association[12] it was found that about 25.2 per cent of 500 children in that community reacted positively to the intracutaneous tuberculin test, a dosage of

* A preliminary report to a more intensive study of tuberculosis in the same group of children.

From the Department of Pediatrics, Stanford University Medical School, San Francisco.

1/10 mg. of K. O. T. being used. In the 12 to 14-year group the percentage was about 42.6. In general there was shown to be a steady rise in the percentage of children reacting positively, proportionate to the age of the patients, (Table 1).

In a smaller series of Oriental children, including both Chinese and Japanese, a similar study has been made of the incidence of infection, using the same amount of tuberculin for testing. The study, however, has extended over a considerably longer period of time than was taken for a study of the first 500 children at large. This was because the attendance at the Stanford Children's Clinic of Oriental children is small as compared with the general average attendance. We do not feel that the two series are exactly comparable as it is well known that the Chinese and Japanese parents bring very few normal children to the clinic. The first study was made on unselected children who visited the clinic, and included both sick children, some of whom were later hospitalized, and well children who came for such treatments as vaccinations and toxin-antitoxin immunizations. All of the Oriental children studied visited the clinic because of some definite complaint, although some of them were minor ones.

Because of the above facts we expected our series of Oriental children to show a higher incidence of infection than proved to be the case when the series was analyzed. The age incidence of infection is tabulated in Table 2.

Charting this incidence graphically (Chart 1), a steady rise in the percentage of positive reactions is revealed, in general coincident with the advance in age. Nineteen children (nine Chinese and ten Japanese) under 2 years of age were tested, none of whom gave positive reactions. The curve for the incidence in Chinese children, if charted, parallels that for the children of the general population quite closely, but is only slightly, though definitely higher. It is not so high as one would expect from the type of Chinese child visiting the clinic, and from the fact that the mortality from tuberculosis among Chinese is about 4½ times that of the rest of the population in San Francisco.

The Japanese are seen to have a considerably higher incidence of tuberculous infection for all age groups as compared with the child population at large, and as compared with the Chinese, except the 12 to 14-age group, where the number tested was comparatively small.

TABLE 1*—*According to Age and Sex*

Age	—Male— No. done	No. pos.	% pos.	—Female— No. done	No. pos.	% pos.	—Total— No. done	No. pos.	% pos.
Under 4	47	8	17.0	62	4	6.4	109	12	11.0
4 to 8	98	24	24.5	95	22	23.2	193	46	23.8
8 to 12	81	26	32.1	63	19	30.2	144	45	31.2
12 to 14	31	14	45.2	23	9	39.1	54	23	42.6
Totals	257	72	28.0	243	54	22.2	500	126	25.2

* From Seitz and Dickey.12

TABLE 2—*According to Age and Race*

Age	—Chinese— No. done	No. pos.	% pos.	—Japanese— No. done	No. pos.	% pos.	—Total—Orientals— No. done	No. pos.	% pos.
Under 2	9	0	0.0	10	0	0.0	19	0	0.0
2 to 4	8	2	25.0	11	3	27.3	19	5	26.3
4 to 8	21	7	33.3	24	11	45.1	45	18	40.0
8 to 12	9	4	44.4	16	9	56.2	25	13	52.0
12 to 14	7	4	57.1	4	2	50.0	11	6	54.5
Totals	54	17	31.5	65	25	38.5	119	42	35.3

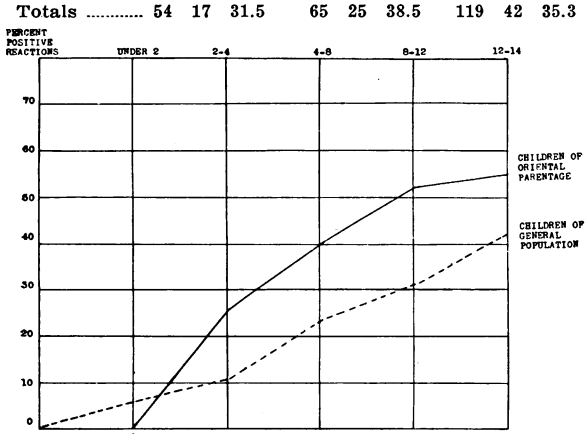

Chart 1—Age Groups.

The curve for the incidence in Chinese children, if charted, parallels that for the children of the general population quite closely, but is only slightly, though definitely higher. It is not so high as one would expect from the type of Chinese child visiting the clinic, and from the fact that the mortality from tuberculosis among Chinese is about 4½ times that of the rest of the population in San Francisco.

The Japanese are seen to have a considerably higher incidence of tuberculous infection for all age groups as compared with the child population at large, and as compared with the Chinese, except the 12 to 14-age group, where the number tested was comparatively small.

CONCLUSIONS

1. In a series of 119 children of various ages up to 14, all of Oriental parentage, there was an incidence of tuberculous infection, as revealed by intracutaneous tuberculin tests, of 35.3 per cent.

2. The incidence for Chinese children was 31.5 per cent; for Japanese, 38.5 per cent. While both of these figures are definitely above the 25.2 per cent of infection of the child population at large for the same city, it must be remembered that the mortality rate from tuberculosis among the Chinese in San Francisco is 4½ times that of the rest of the city, and probably for the Japanese is about the same. Hence the incidence of tuberculous infection reported among children of Oriental parentage is lower than might have been anticipated.

3. No explanation is offered for this observation. It might possibly be explained on the basis of improved hygienic conditions which present day Oriental children in California are enjoying over their parents, or over what their parents were subject to at the time when they were children.

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DISCUSSION

HAROLD K. FABER, M. D. (Stanford University Medical School, San Francisco).—This admirable study by Doctor Dickey forms part of a program instituted and supported for nearly three years by the San Francisco Tuberculosis Association for the purpose of studying the incidence of tuberculosis among the children of San Francisco. The work has been of the utmost interest and of both practical and theoretical importance. A previous report showed that instead of the 70 or 80 per cent assumed on the basis of earlier reports from other localities, less than 50 per cent of children, today and in this locality, under the age of 14 years, show evidence of tuberculous infection. Now it is shown that in that racial section of the community certainly most heavily infected with tuberculosis, a section subject to the unfavorable influences of overcrowding and other elements of faulty hygiene, the children have only a moderately higher frequency of infection than the community as a whole. This is striking corroboration of the general truth that the battle against tuberculosis is fast being won. It is not necessary to enter into the controversy which is being waged over the causes of the general decline of the disease. In the case of the Oriental children one may point to such possible factors as second generation adaptation to American conditions, and to increased prosperity; more important, I think, is the probability that the educational campaign for better personal hygiene, for the out-of-doors life, for more milk, for better housing and ventilation, for more wholesome living in general is having its effect here, too, perhaps more slowly than with the rest of the population but nevertheless to a creditable and increasing extent. That the incidence is at all higher among the Oriental children than among the rest clearly points the direction in which special efforts should be made in the campaign against the disease, not only for the sake of the Orientals themselves but for the sake of the community as a whole.

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WILLIAM C. HASSLER, M. D. (1085 Mission Street, San Francisco).—This preliminary report of Doctor Dickey on the incidence of tuberculous infection in a group of children of Oriental parentage, as shown by the reaction of Mantoux, is extremely interesting to those working with tuberculosis in San Francisco on account of the large Oriental population. One would suppose, as Doctor Dickey has brought out, that on account of the very high Chinese death rate from tuberculosis the incidence of infection, as shown by the tuberculin test, would be in the same proportion, whereas his figures show only a slight increase above the incidence of infection in children of American parentage. Doctor Faber has offered a very plausible explanation of this. In the case of the Chinese there is second and third generation adaptation to American conditions, but this does not apply so universally to the Japanese. However, the housing conditions and personal hygiene in both races are rapidly assuming American standards and both races consume the same rigidly inspected milk supplied to the entire population of San Francisco. A further study of these children of Oriental parentage will be watched with great interest. Repeated examination of some of the same children with a standardized tuberculin would also be of interest.

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WILLIAM M. HAPP, M. D. (523 West Sixth Street, Los Angeles).—Doctor Dickey has very correctly called attention to the fallacy of the statistics on tuberculous infection among children of different ages as determined by tuberculin tests. The high percentage of infection found in European clinics was unquestionably due to the fact that the children tested were clinic patients, many of whom were sick, and such results do not indicate the cross section of the population at large. The figures quoted for California city children, giving a positive percentage of forty-two per cent for ages twelve to fourteen, is probably higher than the incidence of infection among California city children in general.

One factor which must be considered is the number of tuberculous adults who migrate here for their health. The incidence of infection among their children is very high. The percentage of positive reactions among children will be higher when the intracutaneous test is used than with the Pirquet test. For routine testing, 1/100 mg. should be used and the amount used should always be stated, as with stronger amounts the percentage of positive reactions will be higher. It is very essential to use a standardized tuberculin which has been tested and found to be potent on known reactors, as some of the solutions on the market are relatively inactive. The intracutaneous test, when thus performed, is far more reliable than the Pirquet test and has largely superseded it.

It must be remembered that a positive tuberculin test indicates infection and not disease or even activity. Such infection without activity is not necessarily harmful to the individual, but may be valuable in establishing an immunity against subsequent infections.

GOLD AND SODIUM THIOSULPHATE IN THE TREATMENT OF LUPUS ERYTHEMATOSUS*

By HIRAM E. MILLER, M. D.
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DISCUSSION *by Samuel Ayres, Jr., M. D., Los Angeles; George F. Koetter, M. D., Los Angeles; Thomas J. Clark, M. D., Oakland; Moses Scholtz, M. D., Los Angeles.*

SCHAMBERG'S article on the treatment of lupus erythematosus with gold and sodium thiosulphate in February, 1927, was so convincing that most dermatologists are now using the drug in the treatment of this disease. His twenty-five patients, as well as thirty additional ones reported by Whitehouse and Bechet in November of the same year, were definitely improved or cured under this treatment. In view of the fact that lupus erythematosus was considered to be practically incurable by all previous types of therapy, these results are quite remarkable. In this paper I am reporting the results of gold and sodium thiosulphate treatment in fifty-three patients with lupus erythematosus and twenty-one patients with various other chronic skin diseases.

Gold compounds have been a subject of study in the treatment of tuberculosis and allied diseases since 1890 when Koch demonstrated their effect on the tubercle bacillus in the test tube.

* From the Department of Dermatology, University of California Medical School, San Francisco.

* Read before the Dermatology and Syphilology Section, California Medical Association, at its Fifty-Seventh Annual Session, April 30 to May 3, 1928.